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June 18, 1993

DOCKET FILE COPY ORIGINAL

Ms. Donna Searcy
Secretary
The Federal Communications Commission
1919 M Street, NW
Washington, DC 20554

Re: Equipment Compatibility, MM-Docket 92-263

Dear Ms. Searcy:

Enclosed is a copy of a letter-statement that has been provided to each of the Commissioners, dealing with the equipment-compatibility battle between the Consumer Electronics Manufacturers and the Cable TV interests.

Very truly yours,

O. D. Page, P.E.

ODP/pg

Attachments

O.D. Page, P.E.

Professional Engineers & Affiliates

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The Federal Communications Commissioners
1919 M Street, NW
Washington, DC 20554

Commissioners: The Honorable James H. Quello
The Honorable Sherrie P. Marshall
The Honorable Andrew C. Barrett

— i.e., an off-premises cable TV control system such as Mask, or Interdiction, and of course, negative trapping, the grandfather of them all.

There are several immediate and major benefits to be derived by going to an "off-premises" system, and some of these are listed below, in no particular order:

1. *Encourage Competition.* An objective view of the requirement by the Cable Operator that equipment be placed in the subscriber's home leaves much room to conclude that the Cable Operators want to control and monopolize the application of equipment in the subscriber's home — *in almost exactly the same way that the Telephone Companies were doing before the Carterfone Act became law after 20 years of fighting between the Telcos and would-be competitors!*

   As the attached article from the March 12, 1992 *Washington Times* illustrates, media will support, and back down from, their advertisers (customers). Such is further illustrated in additional pieces attached herewith:

   - Multichannel News, April 19, 1993
     The "reasoning" in this article is especially specious. The expression "concern over security: just does not follow; piracy losses in off-premises' security systems surely must be several orders of magnitude less than the 6 billion dollars per year that is being quoted today.

     Then, "...a typical cable system would actually lose $2.3 million over 9 years." Why 9 years? How many subscribers? Average of 2.3 million divided by 9 years = $256,000 per year? Compare to the claimed "$6 billion per year" for the entire Industry, or about $100 per year per subscriber (very high); 2,560 homes is the break-even point for 1 year.

   - Cablevision, April 19, 1993
   - Multichannel News, April 26, 1993

   Further, the following list of pieces, copies attached, show how the media will condemn any competitive threat to "their" advertisers (customers), in this case by trying and convicting "pirates" without due process.

   - Cable World, April 26, 1993
   - Multichannel News, May 10, 1993

2. *"Pirating".* The Cable Industry has claimed that pirating is costing it upwards of $6 billion per year! No documentation has come into view from here that would come close to supporting that figure, and this is up drastically from an "estimated" 4 billion as of last year, for which, also, no support is readily available. This number relates to more than $100 per subscriber per year, a bit hard to swallow. (Per-non-subscriber figure is higher.)

A major benefit of off-premises technology will be the drastic reduction in the amount of "pirating" that is going on.

The development of an off-premises system, such as is used now by the Telephone Industry (a very close analogy but not the same technology) and a very few Cable Operators (except traps; see below), *will resolve most of the piracy problems. Drastically fewer subscribers will go outside their homes to "steal" programming; equipment in the house is "fair game"!* (And, by the way, telephone companies will be competing with the CATV Industry on that same level playing field, i.e., probably no special equipment in the subscriber's home.)

An application of a percentage of that $6 billion — or perhaps 10 or 20% of one year's piracy loss, as claimed by the Cable Industry, would indeed go a long way toward the perfection of a viable off-premises channel-control system.

3 *The technology is available* to permit and to provide for a means for the Cable Operator to provide Cable TV services into the home in the clear without placing any kind of equipment or "boxes" in the home.

Cable Operators claim that such is not possible; it is, and at least two companies are providing equipment which will perform this function: Scientific Atlanta and Phillips (Magnavox). And, don't overlook "negative trapping."

4 *Technology for controlling signal reception from outside the home has been offered on the market for several years, including addressability.*

There is considerable reason to question whether or not the Cable Industry *really has attempted to apply this technology*. Obviously, if the Cable Companies kept their equipment out of the home, third-party suppliers could come in and supply that equipment in competition with the Cable Companies, but of course the Cable Companies, like anyone else, do not want any competition at all.

"Cable Labs," funded by the Cable Industry, does not have one single project or one single dollar allocated toward the objective of making it possible to serve subscribers completely from outside the home, similar to what the Telephone Industry does now. See the attached piece from *International Cable*, February 1993.

have dropped surprisingly. For another, (*and the Cable Operators do not wish to admit this*), the Cable Operators will save a whole lot of money because third-party equipment will not cost the Cable Operator anything, and the Cable Operator will not be responsible for the maintenance of such third-party equipment (although the Cable Operator may wish to provide the channel-control programming for such third-party devices as may use addressable technology). And in one or more instances, penetration is up and costs are down. See also the attached pieces from Multi-Channel News (date unknown) and Cable World (5/24/93), listing the benefits of "interdiction."

In the past, the Cable Industry media have been notably slow to encourage the use of off-premises technology; their "customers" wouldn't like it? See again the attached piece from the *Washington Times* dated March 12, 1993.

6. *Consumer Electronics Equipment — Capabilities can be utilized fully in Cable Systems using off-premises technology, delivering clear signals to the home.*

   The Cable Industry is addressing this whole matter from the standpoint of trying to continue to control what is placed inside the subscriber's home — basically an *un-American* concept.

7. *Special Communications Infrastructure Equipment* can be handled the same way; as with Telephone Companies, the subscriber can go to an alternate source, providing his own terminal. *There is no need for the Cable Industry to try to convert the TV set into a computer! IBM and Apple have done it*, and millions of subscribers have them.

   It's a mistake to allow the Communications Industry (i.e., cable companies, computer companies, etc.) to contemplate placing their equipment in the home (leased equipment would belong to the subscriber); subscribers should install their own terminals — to Cable-Operator interface specifications.

   Analogy has been made between the Cable Company's box, the gas meter, and the electric meter, etc. Such an analogy is not now appropriate, but, *and in fact*, the analogy could be perfected by utilizing exactly this off-premises type of technology as provided by at least two manufacturers, and the control box, outside the home, can be related very closely to the gas meter, water meter, and the electric meter, all of which are also "outside" the homes, i.e., in practically all cases the meter, or the electronics performing that function, is not located inside of the customer's premises. Also, the "original" control system, *negative trapping* is an immaculate example.

The Cable Industry may be increasing costs to the subscriber drastically, by (1) unnecessarily complicating the hardware, (2) leaving themselves open to "$6 billion per year" in theft or piracy losses, and (3) charging monopoly prices. The current "plant configuration" for controlling copyrighted material is a disaster (somewhat comparable to standing up in a hammock).

The bottom line, then, is that something has to be done to get the Cable Operators' specially-defined equipment out of the home; open the subscriber equipment market to real competition; standardize the method of delivering services while making the entire system

And *note again that the Cable Industry "invented" the first immaculate off-premises control system, the negative Trap — and this device is still very much in use today.*

I invite your attention also to a slightly petulant letter which I wrote to Jay Levergood at Scientific Atlanta (copy attached). I was totally taken aback by the reaction of his people down there when I suggested to them that their interdiction system could be perfected and offered as a solution to the FCC for the serious problem of equipment compatibility between the consumer electronics industry and the Cable Industry. (Phillips now offers an off-premises system called "MultiMask.")

I also invite you attention to an article written by Mr. Michael Schrage and published in the February 12, 1993 issue of the Washington Post (also the Los Angeles Times). Mr. Schrage makes a very clear case, for a journalist, for getting that stuff "out of the home"

RECOMMENDATION: FORM AND IMPLEMENT A TECHNICAL COMMITTEE

This matter is not going to be resolved in any reasonable period of time (perhaps even in a reasonable lifetime) if the EIA and the NCTA are allowed to continue to "duke it out"

THURSDAY, MARCH 12, 1992 ★ The Washington Times

Media back down from advertisers, critics say

By Karen Riley
THE WASHINGTON TIMES

The hard-hitting news media — so quick to go for the jugular in political reporting — are developing a soft spot in the way they handle stories about advertisers and their products, according to a new study by a Washington advocacy group.

"Can the American press stand up to General Electric, Procter & Gamble, R.J. Reynolds and the like, the same way it now stands up to the government?" the study's principal author, Catholic University law professor Ron Collins, mused at a news conference yesterday.

His 76-page report, published by the Center for the Study of Commercialism, a watchdog against the increasing dominance of commercialism in society — suggests an emphatic no.

It documents dozens of examples in which radio and television stations, newspapers and magazines have either killed or modified stories to appease advertisers of everything from real estate to prescription drugs:

Some examples:

- The network morning news show that deleted information about substandard parts used to construct jet planes made by the network's parent company.
- The Midwestern television station that killed a story by a veteran consumer reporter because managers feared it might anger some of their car-dealer advertisers.
- A Southern newspaper that fired a columnist of 23 years after he spoke candidly about the local auto industry's influence over the newspaper's editorial content.
- A magazine ad sales representative who tells potential advertisers, "If you give us a spread, we'll give you a page of editorial."

Separately, the New England Journal of Medicine reported in January that magazines that carried tobacco ads are 38 percent less likely to discuss the hazards of smoking than magazines without tobacco ads.

"Everyone is feeling the sting of economic censorship," the report quotes reporter Herb Weisbaum of the Seattle TV station KIRO as saying.

Loren Ghiglione, editor of the News of Southbridge, Mass., and a recent president of the American Society of Newspaper Editors, conceded that many papers have been "subject to pressures from advertisers both before and after stories."

And yet, he pointed out, many newspapers have forged ahead with potentially damaging stories on advertisers, accepting the possible loss of ad revenue.

"There is increased evidence" that the media censor news stories about adver-

see MEDIA, *page C10*

MEDIA

From page C1

tisers, said Robert M. O'Neil, director of the Thomas Jefferson Center for the Protection of Free Expression, located in Charlottesville.

Mr. O'Neil, a former president of the University of Virginia, said the Jefferson Center is looking at the erosion of First Amendment freedoms in art museums, on record packaging and in the press.

"Some industries are especially notorious — the auto industry is high on that," Mr. Ghiglione said.

"When newspapers are filled with ads the policies are very stringent, and when times are tough and they're scratching for ads, I'm sure the policy is looser," said Ted Orme, spokesman for the National Automobile Dealers Association.

Car dealers don't try to dictate policy, he said. "We're looking for fair treatment."

The center makes nine recommendations for change. The industry could impose professional guidelines, establish a national censorship clearinghouse and create a watchdog group to monitor and protest objectionable practices.

Sure to be more controversial are its suggestions that Congress outlaw advertiser censorship and enact whistleblower legislation to protect journalists.

Mr. O'Neil, who frowns on any legislative steps imposed on the news industry, warns that moving too aggressively against advertisers could undermine their own freedom of speech.

EIA, Cable Square Off Over Compatibility

INCOMPATIBLE?: The electronics and cable industries disagree over how to make converter boxes, TVs and VCRs work together.

By ROGER BROWN

The comments are in. The battle lines are drawn. And the cable television and consumer electronics industries are digging in for a long and bitter fight over the hardware the two groups use to deliver video to consumers.

As part of last year's Cable Act, Congress directed the Federal Communications Commission to explore ways to improve compatibility between cable hookups and TVs and VCRs. Twenty-nine entities filed comments with the FCC on March 22.

Specifically, Congress ordered the FCC to search for methods to overcome many of the problems that have plagued consumers since the advent of VCRs and extended-tuning-range televisions.

The issues include watching one channel and recording another simultaneously, taping two consecutive programs that appear on different channels and using advanced television features such as picture-in-picture. Cable operators with addressable descrambling converters make those tasks nearly impossible without optional specialized hardware.

From the cable industry's perspective, it appears the best-case scenario is that the FCC will agree that flexible scrambling methods are the best way to secure signals and that cable operators will be told to implement decoders with times, dual tuners, etc.

The worst thing that could happen is that cable will be told to either cease scrambling, adopt a national scrambling standard or some other single technology, said Bailey. "The commission has to recognize that perfect compatibility probably is not possible in the short-term," he said.

Predictably, both sides' comments were polarized along familiar themes: Electronics manufacturers want a national scrambling standard or cable signals to be delivered "in the clear" so that cable drops can be directly attached to TV receivers, while cable interests are demanding a standard for "cable-ready" TVs and the inclusion of a decoder interface plug on the back of new TVs and VCRs.

These discussions are not new. The engineering communities of both groups know and understand the issue of incompatibility, but because Congress included compatibility in the 1992 Cable Act, it has taken on new importance.

And this time, the tone of the comments from both sides is combative.

"Years of dialogue with the cable industry have con-

SEE CABLE, PAGE 14B

ENTER THE DIGITAL AGE

EIA, Cable Dig in Over Compatibility

CONTINUED FROM PAGE 1B

sumed substantial resources, but generated little meaningful progress in several critical areas," according to comments from the Electronic Industries Association's Consumer Electronics Group. The FCC "should not forget which industry's conduct made this legislation necessary."

Gary Shapiro, group vice president at the EIA, adamantly defends the EIA's call for a national scrambling standard. With a standard, he said, electronics manufacturers could build devices that will work in any cable system and consumers could hook them up right out of the box. Congress mandated

Of course, the NCTA disputes the EIA's version of history, noting that the cable industry had to develop and deploy set-top frequency converters when systems began to offer more than 12 channels because televisions were unable to tune the additional channels. The practice continued because TV manufacturers used poorly shielded tuners, resulting in video impairments. It became a problem only after the manufacturers began touting their devices as "cable-ready," the NCTA argued.

Additionally, EIA members say cable op-

band descrambling is compatible only with older sync-suppression scrambling schemes, that it is incompatible with video compres-

Converter Confrontations

Will cable boxes and consumer TV sets ever work nicely together? At least the two sides are talking

The cable industry might be paying the most attention right now to rates and programming access, since those are the most important clauses in last year's re-regulation law. But there are plenty of technical provisions in the bill, and discussion of some of those items has gotten pretty heated.

Engineers from the consumer electronics and cable industries have been meeting to discuss ways to resolve equipment incompatibilities and duplications in their respective hardware for some time. But the comments filed with the Federal Communication Commission last month were hardly a reflection of that so-called spirit of cooperation—on either side.

The National Cable Television Association told the FCC that it should set strict standards for labeling televisions as "cable ready," and that products not meeting those standards should not be able to tune in cable channels without adding a converter box. NCTA also urged the commission to defer any action on digital compression issues.

"Subscribers purchase programming, not electronics," the NCTA sniffed in its written comments to the commission.

"I was surprised how really devoid of reality their comments were," says Gary Shapiro, VP of the Electronics Industries Association's Consumer Electronics Group. "They were just unbelievably out of tune with what Congress was trying to do."

William Squadron, commissioner of the New York City Department of Telecommunications and Energy, has asked the FCC to form a joint committee to look at consumer electronics incompatibility. If the group is formed by the federal government, it might have more clout, he says.

"The concept of the [NCTA-EIA] joint committee is commendable, but I think it needs to be strengthened or elevated," says Squadron. He says he wouldn't be surprised if some consumers were more outraged by equipment problems than by rate increases. After all, who enjoys spending a few hundred dollars on a television only to take it home and discover its extra features don't work?

"We're already seeing some behind-the-scenes maneuvering" on compatibility issues, says Zenith's Bruce Huber. "This happens not in meetings of committees but one on one."

"The equipment issue is both a financial issue and an irritation issue," Squadron says. "Even wealthy people don't want to feel like they've invested in something to have the rug pulled out from under them."

A number of consumer electronics firms are already in the cable business and, not surprisingly, one has offered something of a solution for incompatibility.

The proposal made by Zenith Electronics Corp.—developed by its television set and cable divisions—wouldn't solve the problems experienced by television sets already in homes that receive scrambled signals. But, says sponsor Bruce Huber, VP of marketing for the company's Consumer Electronics Group, it would allow cable operators to continue to rely on scrambling to protect their signals as well as allow for the adaptation of digital compression.

Zenith has suggested that the FCC require television sets more than 25 inches in diameter to be equipped with an intermediate-frequency port that would "pick out" unscrambled, compressed or other signals unintelligible to a standard NTSC television. The IF device would pass on clear signals to appear on the television screen but would send those that need to be deciphered outside the television to a converter or decompressor. Once translated into signals understandable to an NTSC television, they would be fed back to the screen for display.

"People are stepping up to the issue," says Huber. "We're already seeing some behind-the-scenes maneuvering. This happens not in meetings of committees but one on one."

Huber, who is also chairman of the Cable Consumer Electronics Compatibility Advisory Group, which made its own filing with the commission, says he isn't dismayed by the sharp comments that consumer electronics manufacturers and cable operators have made.

"Maybe to some extent, everybody wanted to let off some steam," Huber says. "We now have some issues of real substance we can put on the table. It's given us some ammunition to work with." CV

NCTA Answers EIA on TV/VCR Compatibility Problems

By PETER LAMBERT

The National Cable Television Association charged the consumer electronics industry with offering much condemnation and few solutions to cable/consumer electronics compatibility problems.

The comments are part of the Federal Communications's Commission's ongoing notice of inquiry.

Disputing the Electronic Industry Associations charges that cable is a "standardless" industry, the NCTA told the FCC last week in its comments that cable is offering hard solutions for consumers unable to tune all cable channels or to make full use of TV or VCR functions.

Those solutions include a cable industry offer to provide — as needed and at reasonable, recoverable costs — alternative set-up devices. They include set-tops with RF bypass (to allow consumers to watch and record one scrambled and one unscrambled signal simultaneously); dual tuner/descramblers (to watch and record two scrambled channels); converters with built-in timers (to record sequentially across channels); and VCR Plus+-type devices to reduce multiple remotes in the home.

"We are assuming these costs can be recovered in some rational way," given unbundled cost allocation inherent in the new rate regulations, said Wendell Bailey, vice president of science and technology for the NCTA. That would mean a rate reduction for some consumers if TV and VCR manufacturers agreed to build ANSI-563 MultiPort decoder interfaces into their products, thereby allowing cable to provide tuner set-tops.

The NCTA has also committed itself to discuss future digital standards with all interested parties, but only after more information on digital video performance becomes available. Halting technological evolution, it said, is not the answer.

With those offers on the table, Bailey said, the NCTA is asking set builders to improve tuner capabilities and to start offering replacement, upgradable tuners in new sets and VCRs. He warned that adoption of a cable-ready definition will become moot if TV makers attempt to escape provisions of the law simply by avoiding the cable-ready label on their products.

At the same time, the NCTA sought to persuade the FCC that EIA-based "in-the-clear" and "broadband scrambling" solutions have so far not provided technically or economically viable. Nor, it said, would EIA members share the burden of such costly solutions. The NCTA also opposed EIA calls for limiting channel capacity or imposing a national scrambling standard as "anti-consumer."■

CABLE WORLD

Vol. 5 No. 17
April 26, 1993

Piracy Bill Suffers Setback in Calif.

By LINDA HAUGSTED

What should have been a slam-dunk legislative success for cable operators in California, strengthening criminal penalties for cable piracy, turned into a blocked shot by a lobbyist for independent hardware distributors.

In the end, state senators used the hearings as a chance to bash cable as they related stories of frustration in trying to use VCRs and remotes with their cable boxes.

Lobbyist Jerry Haleva, acting on behalf of the local chapter of a group called National Cable Consumers Association, has stalled the bill, which the state's cable industry drafted.

The chapter's president is Trey Prevost. He's never been arrested, but in a raid last October, authorities seized set-top hardware and other parts and records at several of Prevost's business locations and turned them over to the Los Angeles district attorney.

Haleva said Prevost manufactures set-tops from scratch and also modifies and upgrades boxes from other sources.

To fight the bill, Prevost launched a public relations effort to contact business writers and paint the legislation as anti-consumer.

It seems to have worked.

The bill would increase financial penalties for persons convicted of possessing 50 items or more related to piracy. It would also clarify that operators can sue convicted pirates for restitution in civil court.

Haleva told senators that subscribers should not be forced to rent equipment from a cable operator when consumers know they can get more technologically advanced models elsewhere.

As an example, Haleva noted that he can't use the universal remote that came with his high-end television and the only remote supplied by his cable company, Sacramento Cable, was a "cheap plastic thing" with few of the features of the remote he already owns.

Consumers should be able to buy hardware from anyone they want, then take it to the local system for authorization, he said.

The technological-incompatibility arguments appeared to hit home with senators. They related their own frustrations with cable, from rates charged for additional outlets to the inability to use features built into their VCRs, according to those who attended the hearing.

The panel tabled the bill for two weeks, and its sponsor directed operators to meet with Haleva to develop language that would punish piracy but preserve competition in the hardware market.

Chances for compromise look dim. Dennis Mangers, vice president of government affairs for the California Cable Television Association, said cable supports competition in equipment, but insists that the industry should not be expected to change its entire method of securing program distribution to satisfy hardware competitors.■

6

GOVERNMENT

Anti-Piracy Foes Form Association

By LINDA HAUGSTED

A group called the National Consumer Cable Association surfaced recently in California, stalling legislation that would strengthen piracy penalties and enable operators to sue in civil court to recover their losses from signal theft.

Cable executives were left wondering, "Who are these guys?"

Members of the founding board of directors described the NCCA as a trade association for independent hardware distributors.

The founders include three people whom law enforcement agencies have subjected to searches in the last year.

The organization was formed, according to a mission statement provided by the NCCA, to "make consumers aware of their legal right to own cable hardware, thereby erasing the mistaken stigma of 'illegal' boxes associated with the industry."

The group also wants to work with the cable industry to develop interfaces among all entertainment hardware and to stamp out piracy, "which interferes with everyone's profitability," said NCCA spokeswoman Danielle Pedersen.

The NCCA was rushed together to fight the California bill, which is designed to put third-party producers of "closed" devices out of business, according to Trey Prevost of Gage Systems Inc., a set-top manufacturer/repair business in Los Angeles, and one of the NCCA's four founders.

California is a trendsetter and the group does not want other states to copy its legislation, he said.

"The problem is, we need [cable's] cooperation. They feel that by eliminating boxes, they end piracy, but that also puts a lot of us out of business," Prevost said.

NCCA
National Consumer Cable Association

"I am not a pirate and I think that charge is refuted by our industry stand," he said.

Cable industry security specialists would not comment on the organization or its members, citing legal considerations.

Besides Provost, the NCCA's founders are Frank Reduci of Tele-View Distributors Inc. in the Chicago area, who is the group's president; Joseph Abboud of MD Electronics, an electronics resale business in Omaha, Neb.; and Glenn Higgin of Midwest Electronics, also in the Chicago area.

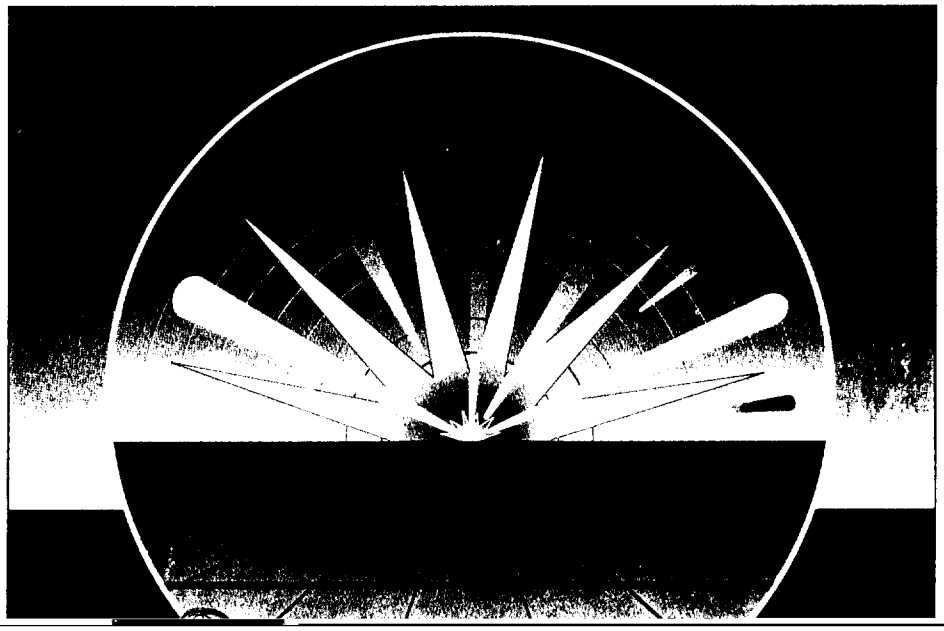
Prevost had hardware and business records seized in October, which a court is still holding, he said. Federal authorities served search warrants on MD Electronics in 1989 and in February, Abboud said. According to local newspaper reports, the police and FBI executed a warrant at Tele-View last November during an investigation instigated by the Motion Picture Association of America. There have been no arrests. The businessmen characterize the investigations as "harassment by the cable industry."

Higgin could not be reached to comment on his business history. Midwest

Pursuing the future with CableLabs

The following is adapted from a speech given on October 19, 1992, at European Cable Communications '92 in London.

By Dr. Richard R. Green



I have been asked to describe Cable Television Laboratories (CableLabs) and outline the projects and philosophy it is employing in an effort to develop and deploy technology for future cable systems.

CableLabs is a nonprofit R&D consortium created in May 1988 by cable operators. Its membership is limited to operators in North America who, at present, serve more than 85% of cable subscribers in the U.S., and over 50% of subscribers in Canada. Many of the companies it serves also are involved

cable's particular needs.

The problem in the past was that no single company could afford to unilaterally support such a venture for very long. Thus, CableLabs was conceived as a central and neutral organization, supported by the bulk of the industry, governed by the CEOs of the industry,

borhood at a node that typically serves about a thousand or more subscribers via traditional coax cable. These structures can provide a 1 GHz bandwidth into the home. In an effort to achieve some standard nomenclature, FSA (fiber-to-the-service area) is the current acronym being used to describe this

"I don't think that it's an exaggeration to say that digital compression for cable is here as a practical option for the future."

vice area into one regional network with centralized facilities. The architecture is a fiber ring bidirectionally fed that can support analog and digital transmission. The regional hub allows operators to share facilities and to provide a common connection point for new services such as pay-per-view movies, digitally compressed programming, advertising insertion, multimedia and personal communications services or data services.

You have all read the recent news of two of our cable companies (TCI and Cox) buying Teleport Communications Group. Teleport is the leading competitive access company in the U.S. Its primary business is to provide interconnection of customers' premises with long distance facilities and to bypass the local telephone exchange carrier. Most current customers are large business entities. However, the market is rapidly expanding to include a wider range of customers. Cable operators will work with Teleport to install these interconnecting bidirectional rings in metropolitan areas. In addition there will be an opportunity for cable companies to build and to lease fiber to the local Teleport carrier. The network that develops will be physically separate, but the fiber for both applications will be installed at the same time.

Compression

Now add to that concept another aspect of the remarkable transition underway in cable: the use of digital video compression and transmission technology. I was not surprised to learn that the original thinking on digital encoding and transmission was done in 1623 by Sir Francis Bacon, who proposed in "The Dignity and Advancement of Learning," to encode the alphabet into a binary system and, further, to transmit information with "devices capable of only two states." He suggested a five-bit word, and his "bilateral alphabet" consisted "only of 'A' and 'B' changed through five places, so as to represent all the letters of the alphabet."

He continues: "We gain no small advantage, as this contrivance shows a method of expressing and signifying one's mind to any distance by objects that are either visible or audible, provided only the objects are capable of two differences, as bells, fireworks, cannon, etc."

"As we move into the digital video age, the capability of new technology is mind boggling."

CableLabs' current task is to apply Sir Francis' vision to video home products. To that end, it is engaged in three separate efforts. The first is direct support of the U.S. and Canadian effort to standardize HDTV transmission throughout North America. It is conducting the laboratory evaluation of the proponent HDTV systems. Its special interest is the suitability of the digital modulation proposals on cable networks. More about that later.

The second effort is its participation in the work of the Motion Picture Experts Group (MPEG), an international committee recommending standards for video and audio compression. CableLabs' role in this committee has been to develop and to represent the technical requirements of the cable industry.

Its third effort is an industrywide search for a digital video compression system that will meet two principal industry needs. The first and most immediate is for digital compression of satellite network signals, which will permit an increase in the number of channels per satellite transponder from the present one to four or more. This first phase of the industry's implementation of digital technology was scheduled to begin by the end of 1992 and will greatly increase the industry's ability to deliver programming services. These signals will be decompressed and decoded at cable headends and retransmitted in standard NTSC AM format over the cable system.

The second step will quickly follow the implementation of the first phase. The second phase will provide transmission of digitally compressed signals over cable networks to the home by early 1994. Here, CableLabs is talking about compacting eight or more standard NTSC TV channels into a single 6 MHz cable channel. Let me make a clarifying point here. The digital compression systems CableLabs is looking at involve innovative modulation of the digital code. The modulation is compatible with the AM carriers the industry presently uses in its transmissions. In other words, it can maintain compatibility with its existing network signal structure in the transition to digital technology. This ensures a smooth, low-cost evolution.

The search for this technology has been conducted by addressing a request for proposal to more than 90 companies located all over the world. The response to the solicitation has been exceptional. Nine entities, some involving consortia of companies, have entered the final competition for the CableLabs contract — all with a commitment to supplying hardware for testing on the satellite transmission leg by this fall.

Some of the competitors are using MPEG-based compression while others employ proprietary techniques. One of the competitors in the bidding already has sold satellite compression equipment. And many have brought their systems to our trade shows, demonstrating spectacular picture quality at 3 Mbits/sec, or even less.

I don't think that it's an exaggeration to say that digital compression for cable is here as a practical option for the future. CableLabs has to work through the issues involving operating protocols and the cost. The cost of the equipment has to be reduced to a level where cable operators can view a shift to digitally compressed service as a profitable move. In this case, I'm talking about consumer level video digital decoders in the home. Already, the satellite headend decoder equipment is at cost parity with standard analog receivers.

A case study

Clearly, there is no technical barrier remaining to making digital compression a real part of our network operations. This means that the 550 MHz FSA networks we are installing today could soon be able to deliver an astonishing number of services. Let's walk through an extreme example. Let's assume that, for a while at least, we continue transmitting our standard network fare, the types of services that go out to everyone in the broadcast mode, in standard AM format. For the typical U.S. cable system, this probably adds up to about 40 channels of programming. That leaves about 40 channels for digital service.

I mentioned earlier that CableLabs is looking at eight NTSC channels per

6 MHz of bandwidth. It turns out that movies can stand especially large compression so that it is possible to carry eight or more movies in a 6 MHz channel, depending on which vendor you talk to. (One company says it can do 16 movies per 6 MHz.) Let's say we devote three quarters of our new digital spectrum to movies and let's choose the conservative end of the range of compression ratio options.

If we choose, we could offer 300 pay-per-view (PPV) movie selections in this model. This leaves another 60 MHz for other digital services. Maybe these are sports channels, which would operate at a ratio of 3 or 4 per 6 MHz. Or maybe they're education services that would operate at the same or even higher ratio of com-

tive services at very low incremental costs.

HDTV

How does HDTV fit into this picture? The U.S. FCC process of selecting an HDTV standard continues on schedule. The plan is to introduce HDTV as a simulcast service and maintain the present 6 MHz channelization scheme. The testing of proponent systems was completed in October 1992. Four of the candidates employ digital compression and transmission, so there is a strong likelihood that a digital system will be selected.

CableLabs has been actively involved in the testing. As one of the two laboratories conducting the tests, its role has been to measure the

evaluate the test results and to make a recommendation to the FCC sometime this month. Following field tests, the FCC could approve a standard for broadcast transmission by autumn of this year.

Summary

In conclusion, I would like to make the following two points:

First, it is clear that the cable industry's networks in North America are maturing into fiber-based, two-way and digitally capable systems able to deliver broadband video and data services (true telecommunications networks). Cable is therefore a valuable potential partner in future delivery systems and an important new service provider to the public.

Second, one of the most remark-

(8)

Interdiction Ups Pay Revenues 40% in Mass.

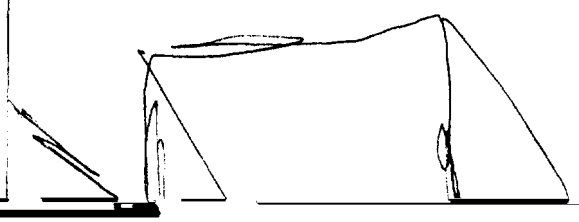
By PETER LAMBERT

Greater Media Cable of Chicopee, Mass., is claiming a 64 percent increase in pay penetration, a tripling of multipay households and a 40 percent pay revenue boost since last July.

The operator attributes the gains to installation of Scientific-Atlanta Inc.'s interdiction technology.

"It satisfies broadcast basic tiering and anti-buy-through provisions without a lot of complications," said Bob Gaboury, vice president and general manager of Greater Media's western Massachusetts systems.

"I've been involved in four or five other rebuilds, and this one was by far the smoothest," Gaboury said. Approximately 18,600 Chicopee subscribers "have overwhelmingly accepted the new system. Everything leads us to reaffirm our original belief that it's going to be well worth the



OPERATIONS

Interdiction's Payoff

Greater Media system in Mass. says revenues up, costs down

BY MATT STUMP

Addressable interdiction equipment has proven to be a tonic for Greater Media's 18,600-subscriber system in Chicopee, Mass.: The managers say

CAPITAL IMPROVEMENTS

Greater Media's system in Chicopee, Mass., says it has boosted pay revenue 40 percent since last July and dropped operating costs after installing addressable interdiction equipment. Here's a look

The system encountered no problems with the rollout, Gaboury said: "I've been involved with four or five other rebuilds, and this one was by far the smoothest."

Basic penetration has increased from 80 percent to 83 percent, and pay penetra-

THE WASHINGTON POST

MICHAEL SCHRAGE

FRIDAY, FEBRUARY 12, 1993

It's Time for Viewers to Get Control of Their Cable TV Converter Boxes

Sure, 500 channels might be fun, but do they really get you the best bang for your cable TV buck? Don't you and your family also want better services for less money?

Then don't just re-regulate the cable industry. Deregulate the cable TV converter box.

Only in America can you own your own TV set, telephone, personal computer, CD player and VCR but be legally prohibited from owning the cable TV converter box that sits in your living room. It's time to tell the cable companies that it's your living room, not theirs.

With virtually every media technology but that cable converter, you get an excellent array of price and choice. Why? Because they are the result of a competitive marketplace that rewards innovation and low-cost manufacturing. The cable converter, by contrast, is the feeble spawn of the pseudo-monopoly. It's designed with the convenience of the cable company—not the consumer—in mind.

"Let a thousand converter boxes bloom," former Federal Communications Commission Chairman Mark Fowler agrees. "This makes good policy sense: It would let consumers choose the box that's best for them. . . . Right now, we have a monopoly cable provider dictating what the box is."

To be sure, deregulating cable converter boxes shouldn't become a sneaky way for people to illegally hook up to cable services, any more than buying a telephone entitles you to free long-distance calls.

What's so provocative, however, is that it might well be in the best economic interest of the cable companies to give up their virtual monopoly on converter boxes. Subscribers who only care about changing channels could buy the cheap converters made in Indonesia; those who want to play video games, retrieve movie snippets and do home banking could buy the top-of-the-line multimedia converters built by Apple Computer Inc., International Business Machines Corp. or Nintendo Co.

Indeed, just as AT&T discovered that more telephones meant more people making calls, cable companies might find that more people might subscribe to more services if Don't forget that the cable companies still get to control what programming comes down their cable. So long as they can protect the integrity of their signals, who cares who owns the box? Cable companies should publish the technical specifications that make open-architecture cable converter boxes possible.

"It would seem to me that this would be a very smart thing for them to do," says Robert LaBlanc, a Tribune Co. director and former vice chairman of Continental Telecom Inc., now Contel Corp., who occasionally consults for cable companies. "It would promote competition and the faster introduction of new services. . . . I think the FCC ought to open up hearings on this."

The cable establishment, on the other hand, is something less than enthusiastic. "Unlike the Bell system," National Cable Television Association spokeswoman Peggy Laramie says, "cable is not a common carrier. . . . Complete and open access does not fit with the heritage of cable."

"While we do not react with revulsion to this notion, we'd oppose it," says Robert Thomson, senior vice president of Tele-Communications Inc., the nation's largest cable company. "Until this rapidly evolving environment is worked through by private industry, it's too soon to set any timetables for standards or deregulation." Thomson insists that market forces could bring about de facto converter deregulation so that government action is unnecessary.

Other cable companies seem more sanguine. "So long as we are able to own the unscrambling circuits," it doesn't much matter who owns the rest of the box, says Walt Ciciora, vice president of technology for Time Warner Cable. Indeed, Ciciora notes, Time Warner also is talking with companies such as Apple Computer about the future blend of computers and converters.

Of course, there are technical issues to be ironed out. But the fact is that the Cable Act of 1992 doesn't go far enough in encouraging a vibrant market in this growing technological arena. The next FCC chairman should do right by consumers, the cable companies and U.S.